S. O. E. RADIO CLUB

Jameson, Physicist for the Allen-Bradley Co., address the S. O. E. Radio Club

Mr. Malcolm Jameson, prominent physicist, gave a lecture before the School of Engineering Radio Club on Monday, October 25th. Mr. Jameson spoke about the application and use of resistances in radio circuits. He spoke of the latest use of prevention of oscillation in the radio frequency amplifiers and the type of units manufactured for the purpose. Jameson also outlined the troubles encountered in the manufacture of the proper units—units that will introduce the minimum of noise into the radio receiver. The control of power in the amateur transmitting set was also dealt with. Many interesting commercial problems (together with their solutions) not met with in the school study, were brought out.

Mr. and Mrs. Werwath Provide Refreshments for the November 1st Meeting of the Club

A very delightful lunch was served after the regular meeting of the club of November 1st. The boys surely had a good time and expressed many complimentary remarks about the hot cocoa and sandwiches. The theory that the best way to a man's heart is through his stomach was again substantiated.

MR. CHESTER L. DAVIS LECTURES BEFORE THE CLUB

Mr. Davis, a prominent engineer, lectured before the club on Monday, November 8th. Davis spoke of the ten K.W. continuous wave station which was built under his supervision at Fort Leavenworth for the United States government. Mr. Davis pointed out that 10,000 volts D.C. is used as the plate supply on the power tubes.

COMMERCIAL CLUB

By Frank Best.

The Commercial Club was organized for the benefit of all commercial students in the school. About the most important feature of the club are it's bi-weekly lectures given in room 21 by men who are in some way connected with industry or the welfare of employes. It seems that about the most attractive features of the club are the refreshments which are served after every lecture to give the fellows a chance to ask the lecturer whatever questions they have in mind. Now, fellows, the club welcomes all newcomers into its fold for the small fee of twenty-five cents every meeting night. Meeting nights are held every Tuesday evening, one week after a lecture night. Those who wish to join may speak to any of the officers of the club who are perfectly willing to give any information in their power.

The officers of the club are: President, Robert Howell; Vice-President, Ellis Sharp; Secretary, Frank Best; Treasurer, Clarence Bodermann.

SIGMA MU SIGMA

Delta, the local chapter of the national fraternity, Sigma Mu Sigma, had a very interesting meeting last Friday evening at the home of Mr. C. Erffmeyer. Mr. Leonard Rogahn of Alpha Chapter, Indiana, was a visitor.

Regular communications are held the first and third Friday evenings of the month.

DELTA PHI ZETA

The Delta Phi Zeta Fraternity, represented by fifteen of its members, was guest of Brother Ellis Lithgow at a party given on the evening of November 1st.

G. E. F.

A. I. E. E. TO HAVE ELECTRIC SIGN

The School Branch of the A. I. E. E. has taken a decided step forward in acquiring the latest means of announcing its meetings.

At the time of this writing the sign was still in the process of construction; the only part actually finished was the board with the letters A. I. E. E. carved in it. This part of the sign was made by B. J. Chromy, the past secretary of the Branch. The rest of the sign was being finished by E. M. Alvarado.

M. R. A. C.

The editor gave a demonstration of the action of the high frequency discharge of a Tesla coil upon the elements of the radio vacuum tube before the Milwaukee Radio Amateur's Club on Thursday evening, October 28th. The demonstration proved very interesting because of the spectacular phenomena that were shown, taking place in the tube, and also because of the fact that never before had such a demonstration been given before the club.

A small Tesla coil, built especially for producing the multi-colored radiations from the elements of the tubes, was used. The coil was excited by the discharge from a small spark coil.

The effects produced were exceedingly beautiful and in many cases inexplicable. A type UV-201 tube was first exposed to the high frequency discharges and it was shown that part of the plate of the tube gave off a phosphorescent radiation. The radiation was of a deep crimson hue—comparable only to the lithium flame. It was pointed out by the chairman of the Technical Committee, who gave the lecture, that this radiation was not accompanied by the evolution of heat, as is the case when any metal is heated to redness. Only portions of the plate, which is made of nickel, gave off the crimson light, and the boundary between the portions that did and those that did not, were shown to be very definite. The effect of the discharges upon the filaments of Western Electric tubes was also demonstrated.

At some future meeting of the club Mr. Hull, a prominent Australian amateur, is to visit the club. The details regarding date and other announcements will be posted, since they have not arrived in time for this issue.

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THE FRESHMAN PARADE

By L. J. Kurtz

On October 29, 1926, passengers on the Wells and Downer car line noticed something like a riot taking place in the Court House park, at Jackson and Oneida streets. Dozens of young men were dashing about madly. All of them wore paint enough to put any tribe of Indians to shame. On closer observation it could be seen that all the victims wore curious little green caps. At once the mystery was solved. College freshmen! The School of Engineering of Milwaukee was holding its annual freshman parade, supervised by the sophomores and upper classmen.

Promptly at 2:00 o'clock three motorcycle policemen came on the scene. After having their pictures taken the freshmen were roped together in two long lines. The two motor police led the way down the street followed by the freshmen advance guard, garbed as clowns. Next a squad of freshmen street cleaners, who swept and mopped vigorously, cleaning street car tracks and dusting manhole covers. Then came the upper classmen in their cars, followed by the S. O. E. standard bearers.

Drum Major Rhodehaver, with a drain plunger for a baton, led Bandmaster Hager's S. O. E. band, which made the show windows rattle with lusty efforts. Then came the freshmen, in "chains," guarded by a line of sophs and upper classmen on each side of them.

Every now and then one or two husky "sophs" would drag a struggling "freshie" to the curb and make him "cuckoo" to some fair lady in the crowd. Many shop keepers had their windows cleaned (more or less) by industrious freshmen, who were commanded by the heartless sophs. Some ladies in the crowd had their shoes shined by freshmen caps wielded by freshmen hands. A couple of taxi drivers had their radiators polished in the same manner. As the street cars stopped at the intersections their windows were energetically polished by ambitious freshmen. A few "frosh" were "gently" led into restaurants where they were made to "cuckoo" to the waitresses.

The line of march was down Jackson Street to Wisconsin Street, along Wisconsin Street and Grand Avenue to Eleventh Street. Over Eleventh to Wells and down Wells to Fourth. Across Fourth to State and over the State Street bridge. The leaders then turned down East Water Street and went up Oneida to the school. The great parade was history.

9SO TO BE BACK "ON THE AIR"

The School of Engineering amateur station, 9SO, will soon be in operation. The antenna system was erected Saturday, November 6th, by the more active members of the school radio club and the set, which is a fifty watt outfit, will be installed shortly. The operating staff of the station consists of about fifteen prominent radio amateurs, all of whom have licenses. The station is to be in operation every night in the week. Messages to any part of the civilized world will be handled by this station.

SUNDAY LECTURES AT THE PUBLIC MUSEUM

Some interesting lectures about the United States and other foreign lands are delivered at the main lecture halls of the museum every Sunday afternoon and evening. The subject of the first lecture of the season was "1926 Excavation of Chichen Itza." Dr. Morely, of the Carnegie Institute of Washington, D. C., spoke about the Mya civilization of Chichen, which was at its height about 2,000 years ago. He illustrated his talk with about seventy-five colored slides of the excavation carried on by the Carnegie expeditions. An interesting part of the lecture dealt with the practical application of astronomy which aided the Mya people.

On October 31st Dr. Baumgardt of Los Angeles, California, delivered the first lecture of the Baumgardt course. His topic was Venice. The doctor's wonderful slides, accompanied by his explanation, delivered in his masterful way, surely held the audience at attention.

The lecture delivered on November 7th was the second of the Baumgardt course. The topics of the lecture is Rome!! Again the doctor's quotations, his revelations of the past of Rome, held the audience's attention throughout the lecture.

POWER AMPLIFIER OF WSOE

The equipment for the 1,000 watt power amplifier unit to be used by WSOE is now ready for assembly. The storage batteries are now being connected and placed into place upon the rocks. They occupy the major portion of the radio station building which is upon the roof of the new building.

The new power amplifier unit is to consist of a 5 K. W. water cooled Western Electric tube. The plate supply consistsof 3,200 volts of storage cells.

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"ATMOSPHERIC DISTURBANCES"

By N. J. Richard

Static is largely due to atmospheric conditions. It presents probably the biggest problem to radio engineers today.

Scientists agree that all matter is composed of atoms and these atoms contain electrons, some more than others, depending upon the nature of the atom. Since this is true, then we might say that the very air or clouds above us are charged at all times, some clouds obtain a negative charge and others a positive charge. When the charge between the two clouds becomes so great the dielectric, or air in this case, breaks down and a discharge takes place between them. The rupture of the dielectric is the report or thunder that is heard following the flash of lightning. The effect of this is quite noticeable in the ordinary receiver and is always a sure indicator of an approaching storm.

It has been proved that every drop of rain water and snow flake contain negative charges of electricity. The writer personally conducted a number of experiments to prove this fact.

A number of times during a heavy rain or snow fall it was found by the writer that large sparks could be drawn from the aerial by grounding a wire and touching it on the aerial lead-in. The earth in this case was positively charged with respect to the rain drops.

The aerial used in the experiments were of the inverted L type, three wires, 100 feet long and a 35 foot lead-in and 40 feet high at the far end, used especially for long wave reception. The aerial was very well insulated from the guys and masts. The lead-in was connected to a lightning switch which was left open for this experiment. Then nature played its part.

It had been raining and snowing all day. The aerial wire was in a neutral field, and every snow flake and drop of rain in falling against the aerial wires deposited its negative charges on the wires which, being well insulated, retained this charge. Then after about six hours a wire was grounded to the earth and brought within a half an inch of the aerial lead-in. Immediately a brilliant spark similar to the discharge of a spark coil jumped this gap with a crackling noise and lasted for approximately from 90 to 120 seconds.

During an ordinary rain or snow fall the drops and flakes on falling to earth immediately become neutralized and does not have a chance to build up a charge that would produce noticeable effects. In the case of the aerial a large charge was allowed to accumulate upon it. The sparking lasted until equilibrium between aerial and ground took place.

This experiment proves that the air and the moisture it contains in the form of droplets of water have electric charges which collect sometimes in clouds and in meeting other clouds of opposite polarity electric discharges take place across to each other. The electric charges then become neutralized.

In discharging, oscillations are set up at various frequencies which are detrimental to some extent to radio reception. This might also explain why in tropical countries where rain falls are so frequent and the air contains much moisture, radio reception is almost impossible at times or accompanied by terrific crashes of this static.

The Aurora Borealis, most commonly known as "Northern Lights," also has very noticeable effects on radio reception. Just what the exact nature of the Aurora Borealis is is not known. It is the subject of study of radio engineers today. It seems to act like a blanket over certain areas, barring all reception until this blanket lifts and disappears.

Some scientists claim that static will never be entirely eliminated, nevertheless, it is one phase of radio worth investigating.

NEW TONE AND VOLUME CONTROL

The general use of multi-tube receivers and super-power broadcasting stations has done much to eliminate the old system of using several jacks in a radio set. There is so seldom an occasion to use head phones that the latest receivers are using only one jack at the most, to which the loud speaker is connected.

This elimination simplifies the wiring of the set, the capacity of the wiring is reduced, and the front panel is improved in appearance. Interstage jacks are hazardous, furthermore, with the popular new audio transformers of high quality, all of which have high primary impedence. The sudden surge of current caused by the opening or closing of a jack circuit is likely to puncture and

burn out the fine wiring used in winding these transformer coils.

A serious problem presents itself, however, when jacks are eliminated, nowadays, particularly in the larger cities, an adequate volume control is needed more than ever before. If the rheostats are turned low, volume will be reduced, but at the expense of clarity. If turned too low, distortion results. Partially detuning the receiver helps, but in this day of congested broadcasting, such a procedure will usually result in interference between stations.

Controlling Tone

Engineers have long been working to devise a means of softening tone without destroying the quality. Several of the highest priced radio receivers sold during the past season have incorporated a tone control on the panel and this proved one of their most important selling features. Now an accessory has just been marketed that provides successful control of tone and volume and can be added to any receiver by the simple expedient of substituting it for the old loud speaker plug. It is called a modulator plug and is manufactured by a Milwaukee manufacturer. The size is but little larger than that of a standard phone plug.

Inside the body of the plug is a non-inductive graphite type of variable resistance controlled by means of a small knob on the plug. When attached to the receiver, it provides an additional tone control that can be adjusted to give any degree of tone volume from a whisper right up to maximum.

An outstanding advantage of this type of control is the apparent reduction of static interference. As volume is reduced by turning the knob, the signal to static ratio seems to increase, until a point is reached where the program can be enjoyed without either detuning the set or reducing the filament pressure below the temperature needed for best reproduction.

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